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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/808,299      | 03/25/2004  | Satoshi Tanaka       | 03180.0360          | 7279             |

7590 08/15/2006  
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|                |              |
|----------------|--------------|
| EXAMINER       |              |
| MEMULA, SURESH |              |
| ART UNIT       | PAPER NUMBER |
| 2825           |              |

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/808,299

Applicant(s)

TANAKA ET AL.

Examiner

Suresh Memula

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07/19/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 8-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/4/2004.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

This is a response to the election filed on 07/19/2006

The examiner acknowledges:

- Election of Group I (Claim 1-7), without traverse
- Groups II and III (Claims 8-20) are non-elected

#### ***Claim Objections***

1. In Claim 2, remove comma after "difference", insert comma after "minimum line width", and insert comma after "exposure system" for proper punctuation and clarity.
2. In Claim 4, insert comma before "respectively" for proper punctuation and clarity.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. **Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. In Claim 1, the phrases "resizing quantity", "space area", "space width", "space quantity", and "less of the resized data" render the claim indefinite since it is unclear as to what the phrases are meant to encompass.
6. In Claim 1, the limitation "generating first mask data by filling a space area having a space width of a space quantity or less of the resized data" omits essential structural/functional relationships and elements, i.e., "filling a space area" with what, is the "less of the resized data" related to "filling space area" or "space width".
7. In Claim 2, the limitation "the projection exposure system" lacks proper antecedent basis.
8. In Claim 3, the limitation "the minimum space width" lacks proper antecedent basis.

9. In Claim 5, the phrase "determined by the window portion" renders the claim incomplete since the relationship of the phrase to the elements within the claim is not clearly established.
10. In Claim 7, the phrase "or less" renders the claim indefinite since it is unclear as to the relationship to the claim.
11. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
12. Claims 2-7 are rejected because they depend on Claim 1.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. **Claims 1-7 are rejected under 35 U.S.C. 102(e)** as being anticipated by Moniwa et al. (US Pub. No. 2003/0106037).
15. As to Claim 1,  
preparing design data having a design pattern corresponding to the pattern to be transferred on a semiconductor substrate (FIG. 10, 22);  
generating resized data (Paragraph 0008; FIG. 10-14, 22) by enlarging the design data by a resizing quantity (Paragraphs 0008, 0054, 0061, 0064; FIG. 11-14);  
generating first mask data (Paragraph 0004; FIG. 10, 22) by filling a space area having a space width of a space quantity or less of the resized data (Paragraphs 0008, 0016, 0019; FIG. 10); and  
generating second mask data (Paragraph 0004, FIG. 10, 22), to be aligned with the first mask data (Paragraph 0004), having a window portion for selectively exposing

an area (Paragraph 0004) determined by enlarging the space area by the resizing quantity (Paragraph 0021; FIG. 10).

16. As to Claim 2, wherein the resizing quantity is larger than a half value of a difference between a minimum line width, with which a pattern can be optically resolved by the projection exposure system, and a line width of the design pattern (FIG. 19-20).

17. As to Claim 3, wherein the space quantity is larger than the minimum space width with which a pattern can be optically resolved by the projection exposure system (Paragraphs 0015, 0061-0062, 0066; FIG. 19-20).

18. As to Claim 4, further comprising performing optical proximity correction on the first and second mask data, respectively (Paragraph 0008; FIG. 10, 22).

19. As to Claim 5, estimating a space width reducing quantity for reducing a space width, of the pattern to be transferred on the semiconductor substrate, determined by the window portion; and enlarging the window portion by the space width reducing quantity (Paragraphs 0015, 0021, 0063; FIG. 10, 22).

20. As to Claim 6, further comprising performing process proximity correction on the first and second mask data to prevent process proximity effect in a process for reducing a space width of the pattern to be transferred on the semiconductor substrate (Paragraph 0008; FIG. 10, 22).

21. As to Claim 7, estimating a space width reducing quantity for reducing a space width, of the pattern to be transferred on the semiconductor substrate, determined by the window portion (Paragraphs 0015, 0021, 0063; FIG. 10, 22); and preparing the design data having a minimum space width with which a pattern can be optically resolved by the projection exposure system or less (Paragraph 0062; FIG. 10, 22).

### ***Conclusion***

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suresh Memula whose telephone number is (571) 272-8046. The examiner can normally be reached on M-F 8am-4:30pm EST.

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on (571) 272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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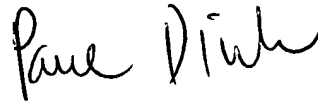
24. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Suresh Memula

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08/04/2006

PAUL DINH  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "Paul Dinh", written in a cursive style.